

A NEW SPECIES OF *BUCCULATRIX* ZELLER  
(LEPIDOPTERA: LYONETHIDAE)  
FROM TEXAS

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*Abstract.*—*Bucculatrix kendalli* is described from reared material obtained from *Colubrina texensis* (T. & G.) Gray (Rhamnaceae). Imago, last instar larva, cocoon, leaf mines, and male and female genitalia are figured.

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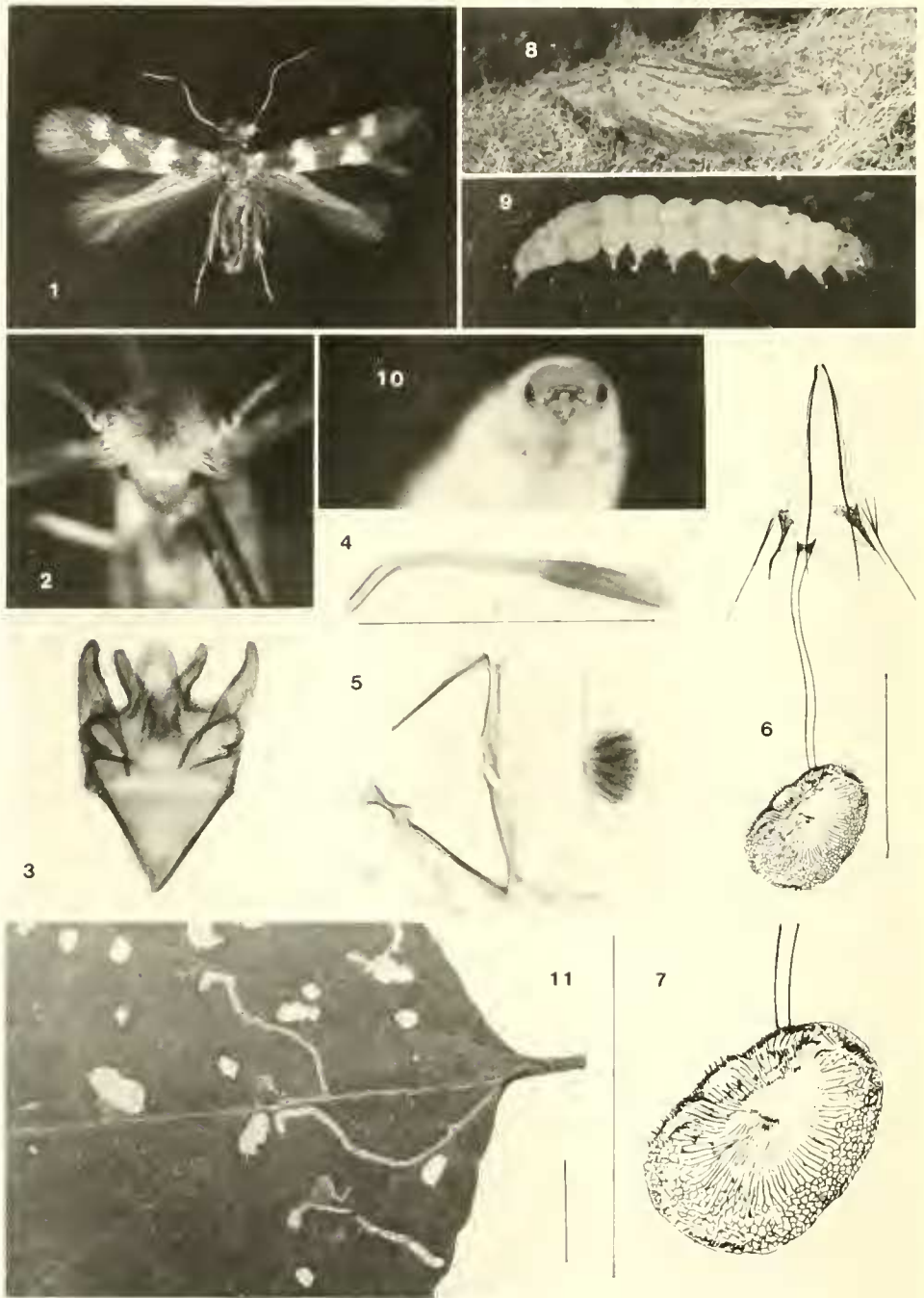
The genus *Bucculatrix* Zeller includes the majority of species included in the family Lyonetiidae, as it is represented in America north of Mexico. This genus was revised for this region by Annette F. Braun (1963), at which time 50 new species were described, representing half the total of included species. Until now, no other new North American species of *Bucculatrix* have been described, but as they are tiny, rather inconspicuous moths, it is likely that many more species remain undescribed. In the adult stage, *Bucculatrix* is most easily recognized by examination of the head under magnification. The long, tapering front, tiny palpi, short naked tongue, prominent scale tuft on the vertex, basal eye caps of the antennae, and notch in the first segment of the flagellum (in males) is a combination unique to this genus. On the other hand, the wing patterns and genitalia are quite diverse. The pupal stage is also easily recognized, by virtue of the ornate, ridged cocoon. Braun divided the genus into two main divisions based on larval habits and further subdivided these groups into eight sections based mainly on genitalic structure. The smaller division (including only section I), includes species that are gall formers or stem borers. The larger division (section II-VIII), includes species that begin life as leaf miners and, in most cases, leave the mine during the third instar and moult into an external feeding form. The species described below fits best into Braun's section II, based on genitalia, but the larval food plant is unusual for this group. The new species is known only from a single colony located in Bexar County, Texas and all examples were reared or collected by Roy O. Kendall.

*Bucculatrix kendalli*, A. Blanchard and E. Knudson, NEW SPECIES

Figs. 1-11

Head (Fig. 2).—Front light silvery grey; eye caps moderate, pale ochreous; tuft on vertex ochreous, shading to reddish brown centrally. Antennae fuscous, paler ventrally, male with deep notch at base of flagellum.

Thorax.—Patagia, tegulae, and mesonotum all dark brown; each edged posteriorly with a row of whitish scales. Legs brown with whitish annulations at joints of tibiae and tarsi.



Figs. 1-11. *Bucculatrix kendalli*, all from Bexar Co., Texas. Ebony Hill Research Station, Roy & C. A. Kendall collectors. 1, Holotype male. 2, Enlargement of the head of holotype, anterior view. 3, Male genitalia of paratype, ventral view, aedeagus removed, from slide ECK 991. 4, Aedeagus, same specimen. 5, Abdominal tergites, same specimen, showing scale sac between 2nd and 3rd tergites. 6, Female genitalia of paratype, drawn by senior author from slide ECK 990. 7, Enlargement of corpus bursae of same specimen. 8, Cocoon, dorsal view, on leaf of foodplant, from captive larva. 9, Last

Abdomen dark fuscous dorsally, whitish ventrally. Scale sac (Fig. 5) ovoid.

Forewings.—Both sexes alike. Ground color dark fuscous, slightly glossy, scales unicolorous, marked with pure white. Extreme base white; white fascia at basal  $\frac{1}{3}$ , slightly widened toward dorsal margin; white costal spot at apical  $\frac{1}{3}$ , followed by a slightly larger white costal spot, just before apex; white subtriangular spot on dorsal margin at tornus. Fringe shining dark fuscous, with a few white scales at subapical white spot.

Hindwings fuscous, fringe concolorous.

Length of forewing.—Males (N = 5), 2.6–2.9 mm, average 2.7 mm. Females (N = 6), 2.6–2.8 mm, average 2.7 mm.

Male genitalia (Figs. 3, 4, 5).—Valvae tapering bluntly at apex, moderately setose; uncus obsolete, socii large, diverging, sparsely setose; gnathos well developed, hood-like; vinculum large, triangular. Aedeagus (Fig. 4), elongate (exceeding length of capsule from vinculum to tip of gnathos), angulate distally, unarmed.

Female genitalia (Figs. 6, 7).—Papillae anales narrow, pointed, sparsely setose; apophyses posteriores three times the length of apophyses anteriores, both well sclerotized; ostium bursae narrowly cup shaped, sclerotized; ductus bursae membranous, nearly equal in length to apophyses posteriores; corpus bursae ovoid, signum consisting of very complicated arrangement of radiating ridges, emanating from a reticulation of hexagonal shapes. A few narrow specialized scales present at postero-lateral margins of 7th segment.

Larval foodplant.—*Colubrina texensis* (T. & G.) Gray (Rhamnaceae). Early instars mine foliage, late instars are external feeders. Fig. 11 is a preserved leaf of the foodplant, showing several mines and shot-like holes, representing work of the external feeding stages.

Early stages (Figs. 8, 9, 10).—The last instar larva is represented in Figs 9 and 10. Head light yellow brown, with 5 stemmata closely grouped around black pigmented protuberances. Prothorax light yellow brown, with prominent black spot above spiracle. Mesothorax yellowish, shading to green; metathorax and abdominal segments grass green. Thoracic legs and abdominal prolegs yellowish. Cocoon (Fig. 8) gray brown, with 5 major ridges, some of which divide at the posterior end. In captivity, the cocoon is spun on any available surface, but in nature, only one cocoon has been found, spun on the undersurface of a stone, beneath the foodplant. There are at least two generations per year, with adults emerging late April to early June and mid August to late October. Some overwinter as pupae.

Holotype.—♂, Bexar Co., Texas, Ebony Hill Research Station, ex-larva, emerged 19-IX-84, Roy & C. A. Kendall collectors, deposited in the National Museum of Natural History.

Paratypes.—All, except one, reared from larvae collected by Roy & C. A. Kendall at Ebony Hill Research Station, Bexar Co., Texas. Larvae collected 2,3-XI-83 10 ♂, 14 ♀ emerged 19-IV-84 to 14-VIII-84. Larvae collected September 1984,

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instar larva, lateral view. 10, Frontal view of last instar larva. 11, Larval work on leaf of foodplant. Segments in 4, 6, and 7 represent 0.5 mm; 3, 4, and 5 are drawn to the same scale; segment in 11 represents 5 mm.

5 ♂, 3 ♀ emerged 12-IX-84 to 23-IX-94. Larvae collected October 1984, ♂, 5 ♀ emerged 18-X-84 to 24-X-84. Adult collected in mid afternoon, resting beneath leaf of foodplant, same locality, 9-X-84, 1 female.

Remarks.—This new *Bucculatrix* does not appear to be closely related to any previously described North American species. In forewing pattern, it is not unlike *B. fugitans* Braun, but the color of that species is different and the genitalia show no close relationship. The male genitalia, with the large triangular vinculum and hood-like structure ventral to the socii, which seems most likely to represent the gnathos, somewhat resembles *B. eupatoriella* Braun and *B. polymniae* Braun. The female genitalia are most distinctive, with modified papillae anales and well developed apophyses anteriores, the latter showing an unusual degree of development compared to other North American species. The life history, with both leaf mining and external feeding stages, follows that of the majority of North American species. The range of this new species may be found to include much of central and south Texas, but as yet, no attempts have been made to locate other colonies. The new species is named for Roy O. Kendall, who discovered it on the grounds of his home and laboratory, outside San Antonio.

#### ACKNOWLEDGMENTS

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#### LITERATURE CITED

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